

In the Claims:

Please amend claims as follows:

Claim 1 (Previously Presented): A spark plug comprising:

a central electrode;

an insulator provided exterior to the central electrode;

a main metallic shell provided exterior to the insulator;

a ground electrode having one end coupled to the main metallic shell and another end facing the central electrode; and

an igniting portion secured to at least one of the central electrode and the ground electrode, and forming a spark discharge gap;

wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from over 10% to less than 30% wt%.

Claim 2 (Previously Presented): The spark plug according to claim 1, wherein the Ir-based alloy includes Rh in an amount ranging from 15 to 25 wt%.

Claim 3 (Previously Presented): The spark plug according to claim 1, wherein the Ir-based alloy includes Rh in a amount ranging from 18 to 22 wt%.

Claim 4 (Currently Amended): ~~A method for producing a spark plug comprising a central electrode; an insulator provided exterior to the central electrode; a main metallic shell provided exterior to the insulator; a ground electrode having one end coupled to the main metallic shell and another end facing the central electrode; and an igniting portion secured to at~~

~~least one of the central electrode and the ground electrode and forming a spark plug gap; said~~

The spark plug according to claim 1, produced by a method comprising the steps of:

working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to less than 30wt% at 700°C or more by hot rolling or hot forging to a wire or rod shape;

cutting the worked alloy to a chip of a specified length; and

welding and bonding the chip as the igniting portion to at least one of the central electrode and the ground electrode.

Claim 5 (Currently Amended): A method for producing a spark plug comprising a central electrode; an insulator provided exterior to the central electrode; a main metallic shell provided exterior to the insulator; a ground electrode having one end coupled to the main metallic shell and another end facing the central electrode; and an igniting portion secured to at least one of the central electrode and the ground electrode and forming a spark plug gap; said The spark plug according to claim 1, produced by a method comprising the steps of:

working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to less than 30wt% at 700°C or more by hot rolling to a sheet;

hot blanking the sheet to a chip of a specified shape; and

welding and bonding the chip as the igniting portion to at least one of the central electrode and the ground electrode.

Claim 6 (Currently Amended): A method for producing a spark plug comprising a central electrode; an insulator provided exterior to the central electrode; a main metallic shell provided exterior to the insulator; a ground electrode having one end coupled to the main metallic shell

~~and another end facing the central electrode; and an igniting portion secured to at least one of the central electrode and the ground electrode and forming a spark plug gap; said The spark plug~~
according to claim 1, produced by a method comprising the steps of:

placing a chip including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% on a tip end face of the central electrode comprising Ni alloy; and
forming an annular welding portion laid across the chip and the central electrode, so as to form the igniting portion including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt%.

~~Claim 7 (Currently Amended): A method for producing a spark plug comprising a central electrode; an insulator provided exterior to the central electrode; a main metallic shell provided exterior to the insulator; a ground electrode having one end coupled to the main metallic shell and another end facing the central electrode; and an igniting portion secured to at least one of the central electrode and the ground electrode and forming a spark plug gap; said The spark plug~~
according to claim 1, produced by a method comprising the steps of:

placing a chip including an Ir-based alloy including Rh in an amount ranging from 10wt% to 25wt% on a tip end face of the central electrode comprising Ni alloy; and
forming an annular welding portion laid across the chip and the central electrode, so as to form the igniting portion including an Ir-based alloy including Rh in an amount ranging from 10wt% to 25wt%.

~~Claim 8 (Currently Amended): The spark plug according to claim 6, The method for producing a spark plug according to claim 6, wherein the welding portion is exposed to an outer periphery of the chip, and is not exposed to the tip end face of the chip.~~

Claim 9 (Currently Amended): The spark plug according to claim 7, The method for producing a spark plug according to claims 7, wherein the welding portion is exposed to an outer periphery of the chip, and is not exposed to the tip end face of the chip.

Claim 10 (Currently Amended): The spark plug according to claim 6, The method for producing a spark plug according to claim 6, wherein a taper portion is formed at a tip end side of the central electrode, and the chip is bonded to the tip end face of the taper portion so as to form the igniting portion.

Claim 11 (Currently Amended): The spark plug according to claim 7, The method for producing a spark plug according to claim 7, wherein a taper portion is formed at a tip end side of the central electrode, and the chip is bonded to the tip end face of the taper portion so as to form the igniting portion.

Claim 12 (Currently Amended): The spark plug according to claim 10, The method for producing a spark plug according to claim 10, wherein the central electrode is arranged such that the whole of the taper portion protrudes from an outside of an opening edge of a through hole of the insulator, the central electrode being inserted into the through hole.

Claim 13 (Currently Amended): The spark plug according to claim 11, The method for producing a spark plug according to claim 11, wherein the central electrode is arranged such that the whole of the taper portion protrudes from an outside of an opening edge of a through hole of the insulator, the central electrode being inserted into the through hole.

Claim 14 (Currently Amended): The spark plug according to claim 6, The method for producing a spark plug according to claim 6, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling or hot forging to a wire or rod shape, and thereafter, cutting the worked alloy to a specified length in a longitudinal direction.

Claim 15 (Currently Amended): The spark plug according to claim 7, The method for producing a spark plug according to claim 7, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling or hot forging to a wire or rod shape, and thereafter, cutting the worked alloy to a specified length in a longitudinal direction.

Claim 16 (Currently Amended): The spark plug according to claim 6, The method for producing a spark plug according to claim 6, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling to a sheet, hot blanking the sheet to a chip of a specified shape, and welding and bonding the chip.

Claim 17 (Currently Amended): The spark plug according to claim 7, The method for producing a spark plug according to claim 7, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling to a sheet, hot blanking the sheet to a chip of a specified shape, and welding and bonding the chip.

Claim 18 (Currently Amended): The spark plug according to claim 4, The method for producing a spark plug according to claim 4, wherein the igniting portion including an Ir-based alloy including Rh in an amount ranging from 15wt% to less than 25wt%.

Claim 19 (Currently Amended): The spark plug according to claim 5, The method for producing a spark plug according to claim 5, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 15wt% to less than 25wt%.

Claim 20 (Currently Amended): The spark plug according to claim 6, The method for producing a spark plug according to claim 6, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 15wt% to less than 25wt%.

Claim 21 (Currently Amended): The spark plug according to claim 7, The method for producing a spark plug according to claim 7, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 15wt% to less than 25wt%.

Claim 22 (Currently Amended): The spark plug according to claim 18, The method for producing a spark plug according to claim 18, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 18wt% to less than 22wt%.

Claim 23 (Currently Amended): The spark plug according to claim 19, The method for producing a spark plug according to claim 19, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 18wt% to less than 22wt%.

Claim 24 (Currently Amended): The spark plug according to claim 20, The method for producing a spark plug according to claim 20, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 18wt% to less than 22wt%.

Claim 25 (Currently Amended): The spark plug according to claim 21, The method for producing a spark plug according to claim 21, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 18wt% to less than 22wt%.

Claim 26 (Previously Presented): A spark plug comprising a central electrode; an insulator provided exterior to the central electrode; a main metallic shell provided exterior to the insulator; a ground electrode having one end coupled to the main metallic shell and another end facing the central electrode; and an igniting portion secured to at least one of the central electrode and the ground electrode and forming a spark plug gap;

wherein a chip including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% is placed on a tip end face of the central electrode comprising Ni alloy; and
an annular welding portion laid across the chip and the central electrode is formed so as to form the igniting portion including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt%.

Claim 27 (Previously Presented): A spark plug comprising a central electrode; an insulator provided exterior to the central electrode; a main metallic shell provided exterior to the insulator; a ground electrode having one end coupled to the main metallic shell and another end facing the central electrode; and an igniting portion secured to at least one of the central electrode and the ground electrode and forming a spark plug gap;

wherein a chip including an Ir-based alloy including Rh in an amount ranging from 10wt% to 25wt% is placed on a tip end face of the central electrode comprising Ni alloy; and an annular welding portion laid across the chip and the central electrode is formed so as to form the igniting portion including an Ir-based alloy including Rh in an amount ranging from 10wt% to 25wt%.

Claim 28 (Previously Presented): The spark plug according to claim 26, wherein the welding portion is exposed to an outer periphery of the chip, and is not exposed to the tip end face of the chip.

Claim 29 (Previously Presented): The spark plug according to claim 27, wherein the welding portion is exposed to an outer periphery of the chip, and is not exposed to the tip end face of the chip.

Claim 30 (Previously Presented): The spark plug according to claim 26, wherein a taper portion is formed at a tip end side of the central electrode, and the chip is bonded to the tip end face of the taper portion so as to form the igniting portion.

Claim 31 (Previously Presented): The spark plug according to claim 27, wherein a taper portion is formed at the tip end side of the central electrode, and the chip is bonded to the tip end face of the taper portion so as to form the igniting portion.

Claim 32 (Previously Presented): The spark plug according to claim 30, wherein the central electrode is arranged such that the whole of the taper portion protrudes from an outside of an

opening edge of a through hole of the insulator, the central electrode being inserted into the through hole.

Claim 33 (Previously Presented): The spark plug according to claim 31, wherein the central electrode is arranged such that the whole of the taper portion protrudes from an outside of an opening edge of a through hole of the insulator, the central electrode being inserted into the through hole.

Claim 34 (Previously Presented): The spark plug according to claim 26, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling or hot forging to a wire or rod shape, and thereafter, cutting the worked alloy to a specified length in a longitudinal direction.

Claim 35 (Previously Presented): The spark plug according to claim 27, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling or hot forging to a wire or rod shape, and thereafter, cutting the worked alloy to a specified length in a longitudinal direction.

Claim 36 (Previously Presented): The spark plug according to claim 26, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount ranging from 7wt% to 10wt% at 700°C or more by hot rolling to a sheet, hot blanking the sheet to a chip of a specified shape, and welding and bonding the chip.

Claim 37 (Previously Presented): The spark plug according to claim 27, wherein the chip is produced by working a molten alloy including an Ir-based alloy including Rh in an amount

ranging from 7wt% to 10wt% at 700°C or more by hot rolling to a sheet, hot blanking the sheet to a chip of a specified shape, and welding and bonding the chip.

Claim 38 (Previously Presented): The spark plug according to claim 26, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 15wt% to less than 25wt%.

Claim 39 (Previously Presented): The spark plug according to claim 27, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 15wt% to less than 25wt%.

Claim 40 (Previously Presented): The spark plug according to claim 38, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 18wt% to less than 22wt%.

Claim 41 (Previously Presented): The spark plug according to claim 39, wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from 18wt% to less than 22wt%.

Claim 42 (Previously Presented): A spark plug comprising:
a central electrode;
an insulator provided exterior to the central electrode;
a main metallic shell provided exterior to the insulator;
a ground electrode coupled to one end of the main metallic shell and having another end facing the central electrode; and
an igniting portion secured to at least one of the central electrode and the ground electrode, and forming a spark discharge gap;

wherein the igniting portion includes an Ir-based alloy including Rh in an amount ranging from over 10% to less than 30% wt%.

Claim 43 (Previously Presented): A spark plug according to claim 42, wherein the Ir-based alloy includes Rh in an amount ranging from 15 to 25 wt%.

Claim 44 (Previously Presented): A spark plug according to claim 42, wherein the Ir-based alloy includes Rh in a amount ranging from 18 to 22 wt%.